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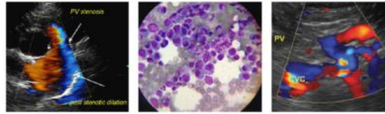



SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

**PATIENT**
Ollie Crawford

**SPECIES**
Canine

**BREED**
Boston Terrier

**SEX**
Female Spayed

**AGE**
9 years

**WEIGHT**
24.1lbs

**INTERPRETED BY**
Maggie Machen Lamy, DVM, DACVIM (Cardiology)

**IMAGING PERFORMED BY**
Kim Liedberg

**HOSPITAL NAME**
SVS Imaging WI

**REFERRING VET**
Dr. Lamberty

**INVOICE**
28762

**DATE**
2/2/23

## PRESENTING CLINICAL SIGNS

History: Presented for bloated abdomen for 3 to 4 weeks; ascites confirmed. No heart murmur noted. No exercise intolerance, coughing or breathing distress.
-Abnormal PE/Chem/CBC/UA Results: Elevated liver values BUN 31 HCT 42.6.

## ECHOCARDIOGRAM FINDINGS

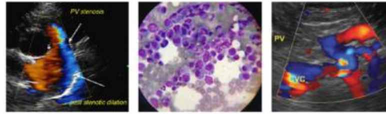
2D, m-mode, color flow and doppler imaging is available. A soft tissue lesion is visualized (2.1 x 3.0cm in best viewed cross-section). The mass is associated with the heart base, near the level of the pulmonary artery bifurcation. Compression and potentially early infiltration is suspected. Moderate mitral regurgitation, mild thickening of the mitral valve. LV function is adequate. Left atrium is mildly dilated (ratio falsely elevated due to mass). LV is normal in diameter. RA/RV are severely enlarged. Moderate TR. The pulmonic and aortic valves are normal in appearance. Normal LVOT velocity. Normal RVOT velocity. No AI or PI identified. No pericardial effusion. Large volume ascites noted by the Sonographer.

## CARDIAC CHART

| CANINE CARDIAC PARAMETERS | MR VMAX (m/s) | TR VMAX (m/s) | LA/AO (Boon method) | LA/AO (Heart Base; Swe) | FS (%) | EF (%) | EPSS (cm) |
|---|---|---|---|---|---|---|---|
| NORMAL PARAMETER | 4.5-5.5 | <2.7 | 1.3 | <1.6 | 28-40 | 40-100 | <0.6 |
| PATIENT | 4.7 | NM | NM | 1.8 | 52 | 85 | 0.12 |
| **CANINE CARDIAC PARAMETERS** | **HR** (BPM) | **AV VMAX** (m/s) | **PV MAX** (m/s) | **BODY WEIGHT** (kg) | **LA** 2D short axis Base view (cm) | **LVIDd** Avg; 2D and m-mode short axis (cm) | **LVIDs** Avg; 2D and m-mode short axis (cm) |
| NORMAL PARAMETER | 50-100 | 0.7-1.7 | 0.7-1.6 | BELOW | BELOW | BELOW | BELOW |
| PATIENT | 136 | 1.1 | 0.6 | 10.9 | 2.7 | 2.9 | 1.4 |
| *Normal chamber parameters expressed as a mean value (SD) | | | | 3 | 1.27 (5.3) | 2.46 (2.46) | 1.36 (5.5) |
| **BODY WEIGHT DEPENDENT PARAMETERS** | | | | 5 | 1.40 (4.5) | 2.74 (5.2) | 1.60 (4.7) |
| **Note: All measurements based upon multi-modal images and methods. An average value is reported.* | | | | 10 | 1.50 (3.8) | 3.27 (3.5) | 2.06 (3.1) |
| | | | | 15 | 1.83 (2.0) | 3.71 (2.4) | 2.43 (2.1) |
| | | | | 20 | 2.02 (1.9) | 4.14 (2.2) | 2.80 (2.0) |
| Adapted from June Boon, Veterinary Echocardiography, 1998 | | | | 25 | 2.18 (2.4) | 4.48 (2.9) | 3.10 (2.5) |
| Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435 | | | | 30 | 2.33 (3.3) | 4.83 (3.9) | 3.39 (3.4) |
| Hansson et al, Vet Rad and Ultrasound 2002 | | | | 35 | 2.48 (4.3) | 5.17 (5.0) | 3.69 (4.5) |
| Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995 | | | | 40 | 2.62 (5.2) | 5.48 (6.1) | 3.96 (5.4) |
| | | | | 50 | 2.88 (7.1) | 6.07 (8.3) | 4.46 (7.4) |

## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Primary cardiac neoplasia is identified leading to compression of at least the distal pulmonary artery and severe right heart dilation. The size of the mass is distorting normal views making additional compressive issues certainly a possibility. Once a mass is compressing the cardiac chambers and peripheral vasculature, the patient is at extremely high risk for congestive signs as is seen here with accumulation of ascites. There is also moderate mitral regurgitation with mild LA enlargement, further putting the patient at risk for left-sided CHF as well. No obvious additional issues are identified.





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Given the location of the mass and signalment, the likely diagnosis is a chemodectoma; however, a less common extra-cardiac tumor such as ectopic parathyroid, HSA, etc. cannot be entirely ruled out without a biopsy. The issue is more of a mechanical obstruction than true pulmonary hypertension, and Sildenafil will be of little benefit. The best we can do is remove effusion and use medications for congestive heart failure to help slow development of fluid accumulation. The compressive nature and/or possible early infiltration of the mass should be relayed as a grave prognosis, as the patient is already experiencing related congestion. Referral would be the gold standard in this case, given the severity of the findings and concurrent malignant arrythmias. Advanced imaging including advanced echocardiography +/- thoracic CT scan would be helpful to fully understand the extent of disease. If declined, supportive care can be attempted for the short term; however, diuretics and cough suppressants are a band aid over a much bigger issue as the tumor continues to grow. Euthanasia should be considered in this case if quality of life is suffering.

Going forward there are some options for obtaining more information and palliating this type of cancer. Should the client elect to proceed, radiation and/or chemotherapy can be discussed with an Oncologist.

High risk will always remain for recurrent effusions (pericardial, pleural or abdominal) and development of arrhythmias/sudden death at home. Monitor at home for progressive abdominal distention, labored breathing and/or lethargy and collapse.

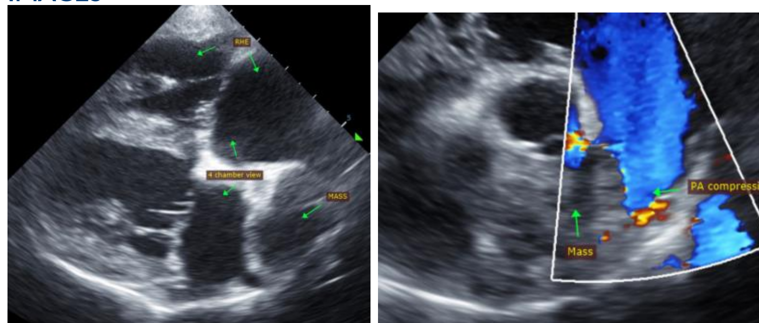
## PLA

Highly recommend immediate referral to a multi-specialty center for advanced imaging, supportive care and further consultation. If declined, the following medications can be attempted: Administer Furosemide 1-2mg/kg PO q12h.). Administer spironolactone 1-2mg/kg PO q12h. Administer Pimobendan 0.3mg/kg PO q12h. Administer further supportive care including Hydrocodone. Abdominocentesis as needed for comfort. If quality of life does not dramatically improve, Euthanasia should be considered.

A renal panel is recommended in 5-7 days, then every 2-3 months going forward.

A recheck echocardiogram to reassess mass dimension and heart size is recommended in 2-3 months.

## IMAGES




**The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.**

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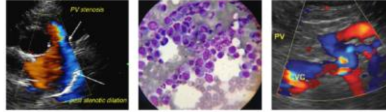

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Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance, please contact me.

**Maggie Machen Lamy, DVM**
**Diplomate of the American College of Veterinary Internal Medicine (Cardiology)**
info@sonopath.com